

What is claimed is

- Sub A2*
1. A method of life like computer gaming and simulation comprising the steps of:  
providing a computer controlled display screen having an extensive surface;  
optically determining position of one or more points on a user or an object;  
providing data input relative to the determined position to said computer; and  
controlling a displayed image provided on said screen with said computer in  
response to said determined position of said user or object.
  2. A method according to claim 1, wherein said determining step is accomplished  
with one or more TV cameras.
  3. A method according to claim 2, wherein said cameras are located proximate said  
display screen.
  4. A method according to claim 1, wherein said displayed image is substantially  
lifesize.
  5. A method of gaming or simulation comprising the steps of:  
providing a screen or other surface on which video images are displayed;  
obtaining one or more optical images containing data concerning (a) one or more  
persons playing the game or simulation, or (b) objects used in said game or simulation;  
from said image data, determining the location of one or more points on said  
persons or objects;  
from said determined locations, determining at least one game parameter; and  
using said game parameter, changing an audio or video display characteristic of  
the game or simulation.
  6. A method according to claim 5, wherein said data is an x and y location of a  
projectile object hit on said screen.

7. A method according to claim 5, wherein location of a point on an article of clothing worn by a person is determined.
8. A method according to claim 5, including the further step of providing an overlay on the screen indicative of some other gaming or simulation attributes.
9. A method according to claim 5, wherein said screen is a projection TV screen.
10. A method according to claim 5, wherein said object is an artifact that humans use in gaming.
11. A method according to claim 5, wherein said screen is capable of withstanding severe impacts of commonly used sports gaming objects used for the games in question.
12. A method according to claim 5, wherein said display is viewed in 3-D by a user.
13. A method according to claim 5, wherein said images are digitized by at least one TV camera.
14. A method according to claim 13, wherein said TV camera is proximate said screen.
15. A method according to claim 5, wherein said object is a projectile whose trajectory is determined.
16. A method according to claim 5, wherein the location of a player or portion thereof is continuously tracked, and varying video imagery is displayed as a result of locations determined.

17. A method according to claim 5, wherein data concerning location of points on both persons and objects used in the game are determined.
18. A method according to claim 5, wherein location of a point is determined in 3 dimensions.
19. A method according to claim 5, wherein the point on a person is on the person's head, finger, hand or foot.
20. A method according to claim 5, wherein said point is of high contrast relative to its surroundings.
21. A method of gaming or simulation comprising the steps of:  
providing a screen or other surface on which video images are displayed;  
obtaining one or more optical images containing data concerning one or more persons playing said game or simulation, and objects used in said game or simulation;  
from said image data, determining the location of a one or more points on said persons or objects;  
from said determined locations, determining the relation of one or more points on said player or object to the displayed image on the screen; and  
controlling the displayed image in accordance with said relation so determined.
22. A method according to claim 21, wherein said object is an artifact that humans use in gaming.
23. Apparatus for determining location of a person, object, or portion thereof in front of a display comprising:  
a camera located proximate said display and looking outward therefrom; and  
a computer for analyzing images obtained by said camera.

24. Apparatus according to claim 23, wherein a stereo pair of cameras are used.

25. Apparatus according to claim 24, wherein said pair are located substantially on each side of the screen.

26. Apparatus according to claim 23, wherein said display is also able to display an image of said object or person obtained with said camera.

27. A method of gaming or simulation comprising the steps of:  
providing a screen or other surface on which video images are displayed;  
obtaining one or more optical images containing data concerning one or more persons playing said game or simulation, or of objects used in said game or simulation;  
from said image data, determining the location of one or more points on said persons or objects;  
using said determined locations, determining the relation of one or more points on said player or object to the displayed image on the screen; and  
controlling the displayed image in accordance with said relation so determined.